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# THE Fats and Oils SITUATION

BUREAU OF AGRICULTURAL ECONOMICS
UNITED STATES DEPARTMENT OF AGRICULTURE

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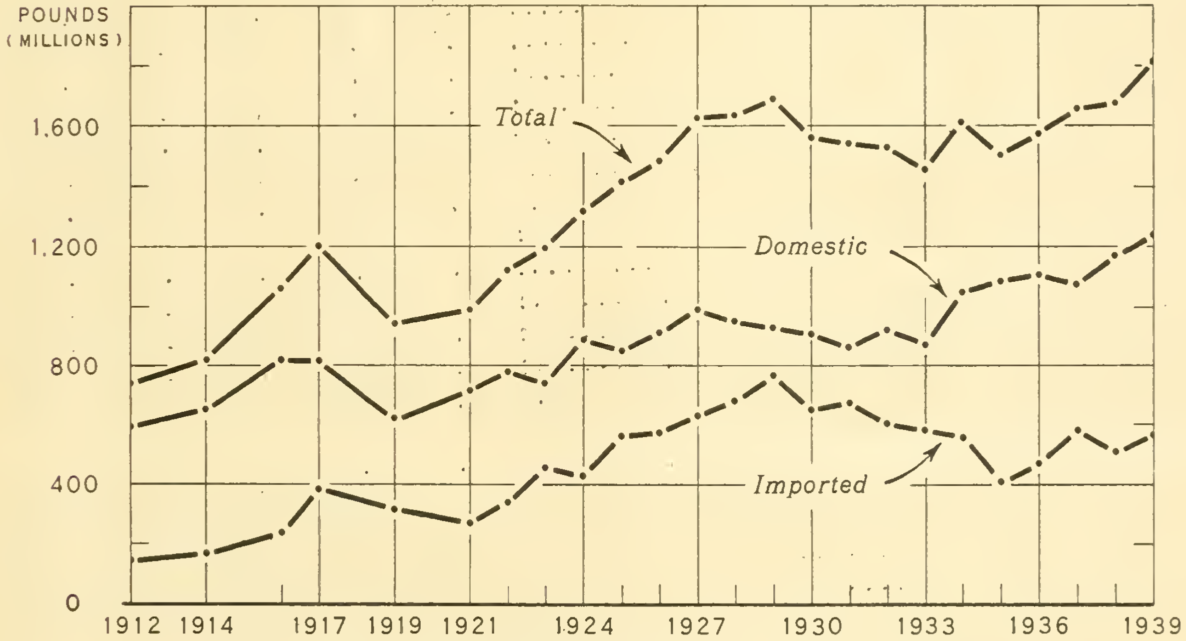
DOMESTIC AND IMPORTED FATS AND OILS USED IN THE MANUFACTURE OF SOAP, UNITED STATES, BIENNIAL 1912-16 AND 1917-19, ANNUAL 1921-39



*BASIC DATA 1912-30, U. S. TARIFF COMMISSION; BEGINNING 1931, BUREAU OF THE CENSUS*

U. S. DEPARTMENT OF AGRICULTURE NEG. 38529 BUREAU OF AGRICULTURAL ECONOMICS

Fats and oils used in soap accounted for nearly one-fifth of the total utilization of fats in the United States in 1939. During the past 10 years, fats and oils of foreign origin have declined in importance as soap materials, largely because of duties and taxes levied on imports and processing. The imported "lauric-acid" oils (coconut, palm-kernel, and babassu), however, continue to make up 20 to 22 percent of the total fats used in soap, chiefly because of their unique quick-lathering properties.

Table 1.- Price per pound of specified fats and oils, and oil-bearing materials, July 1938 and 1939, and May-July 1940

| Item | July 1938 | July 1939 | 1940 May | 1940 June | 1940 July 1/ |
|---|---|---|---|---|---|
| Fats and oils: | Cents | Cents | Cents | Cents | Cents |
| Butter, 92-score, Chicago | 25.4 | 23.2 | 26.4 | 26.3 | 26.5 |
| Oleomargarine, dom. veg., Chicago | 16.2 | 14.5 | 15.0 | 15.0 | 15.0 |
| Compounds (animal and veg. cooking fats), Chicago | 10.3 | 8.8 | 9.5 | 9.2 | 9.2 |
| Lard, prime steam, tierces, Chicago | 8.9 | 5.7 | 5.6 | 5.5 | 5.8 |
| Lard, refined, tubs, Chicago | 9.7 | 6.6 | 6.4 | 6.2 | 2/ |
| Oleo oil, extra, tierces, Chicago | 9.2 | 7.2 | 7.0 | 7.0 | 7.0 |
| Oleostearine, bbls., N. Y. | 7.4 | 5.7 | 6.0 | 5.8 | 5.5 |
| Corn oil, crude, tanks, f.o.b. mills | 7.7 | 5.3 | 5.9 | 5.5 | 5.4 |
| Corn oil, refined, bbls., N. Y. | 9.9 | 8.6 | 8.8 | 8.4 | 8.4 |
| Cottonseed oil, crude, tanks, f.o.b. S. E. mills | 7.3 | 5.0 | 5.7 | 5.1 | 5.4 |
| Cottonseed oil, p.s.y., tank cars, N. Y. | 8.6 | 6.1 | 6.4 | 6.0 | 6.0 |
| Peanut oil, crude, tanks, f.o.b. mills | 7.5 | 5.2 | 5.9 | 5.7 | 5.8 |
| Peanut oil, dom. refined, bbls., N. Y. | 10.2 | 8.9 | 9.2 | 8.9 | 8.9 |
| Soybean oil, crude, tank cars, midwestern mills | 5.9 | 4.3 | 5.3 | 4.7 | 4.7 |
| Soybean oil, refined, drums, N. Y. | 8.5 | 7.2 | 8.0 | 7.3 | 7.1 |
| Babassu oil, tanks, N. Y. | 6.5 | 6.0 | 6.1 | 5.9 | 6.0 |
| Coconut oil, crude, tanks, f.o.b. Pacific Coast 3/ | 6.1 | 5.7 | 5.8 | 5.5 | 5.5 |
| Coconut oil, edible, tanks, N. Y. | 8.2 | 7.6 | 7.0 | 7.0 | 7.5 |
| Olive oil, edible, drums, N. Y. | 25.1 | 25.1 | 25.9 | --- | 30.7 |
| Olive-oil foots, prime, drums, N. Y. | 8.0 | 6.9 | 8.5 | 9.1 | 9.0 |
| Palm oil, Niger, crude, drums, N. Y. 3/ | 7.0 | 6.7 | 7.5 | 7.5 | 7.4 |
| Palm oil, Sumatra, bulk, N. Y. 3/ | 6.0 | 5.7 | 5.5 | 5.5 | 5.4 |
| Rape oil, refined, bbls., N. Y. | 4/10.3 | 4/10.8 | 14.6 | 15.0 | 15.0 |
| Sesame oil, refined, drums, N. Y. | 10.4 | 9.2 | 16.0 | 16.0 | 16.0 |
| Teaseed oil, crude, drums, N. Y. | 8.0 | 9.5 | 12.5 | 12.5 | 12.5 |
| Tallow, inedible, Chicago | 5.3 | 4.4 | 4.2 | 3.8 | 3.8 |
| Grease, A white, Chicago | 5.5 | 4.5 | 4.2 | 3.8 | 3.8 |
| Menhaden oil, crude, tanks, f.o.b. Baltimore | 3.7 | 3.5 | 4.6 | 4.7 | 4.7 |
| Sardine oil, crude, tanks, Pacific Coast | 4.2 | 3.6 | 5.6 | 5.4 | 5.0 |
| Whale oil, refined, bleached winter, drums, N. Y. | 8.9 | 4/8.0 | 9.5 | 9.5 | 9.5 |
| Linseed oil, raw, tank cars, Minneapolis | 8.2 | 8.4 | 10.0 | 9.3 | 8.7 |
| Linseed oil, raw, carlots, bbls., drums, N. Y. | 8.7 | 9.1 | 10.6 | 10.0 | 9.3 |
| Perilla oil, drums, N. Y. | 4/10.5 | 4/11.1 | 18.5 | --- | 18.8 |
| Oiticica oil, drums, N. Y. | 10.4 | 15.0 | 17.5 | 17.5 | 18.0 |
| Tung oil, drums, N. Y. | 13.0 | 21.9 | 24.8 | 24.0 | 25.6 |
| Castor oil, dehydrated, drums, carlots, N. Y. | --- | --- | 17.0 | 16.7 | 15.7 |
| Castor oil, No. 3, bbls., N. Y. | 9.2 | 8.2 | 12.8 | 12.8 | 12.2 |
| Cod-liver oil, med. U.S.P. bbls., N.Y. (dol. per bbl.) | 26.5 | 20.5 | 60.0 | 66.2 | 67.5 |
| Oil-bearing materials: | | | | | |
| Copra, bags, f.o.b. Pacific Coast | 2.0 | 1.7 | 1.6 | 1.6 | 1.6 |
| Cottonseed, Dallas (dol. per ton) | 23.9 | 18.2 | 25.6 | 22.0 | 20.8 |
| Flaxseed, No. 1, Minneapolis (per bu.) | 183.0 | 157.0 | 197.0 | 178.0 | 158.0 |
| Peanuts, shelled, Runners No. 1, f.o.b. S. E. mills | 5.2 | 5.0 | 5.2 | 4.8 | 4.7 |
| Soybeans, No. 2 Yellow, Chicago (per bu.) | 92.0 | 90.0 | 100.0 | 81.0 | 82.0 |

Compiled from Oil, Paint and Drug Reporter, The National Provisioner, Chicago Daily Trade Bulletin, Minneapolis Daily Market Record, and reports of the Agricultural Marketing Service and Bureau of Labor Statistics. Prices quoted include excise taxes and duties where applicable. 1/ Preliminary. 2/ Series discontinued. 3/ 3-cent processing tax added to price as originally quoted. 4/ Revised.

## THE FATS AND OILS SITUATION

### Summary

Prices of most fats and oils showed little change in July, although flaxseed and cottonseed prices declined as new-crop marketings got under way. But prices generally, with the exception of tallow and greases, were equal to or higher than the relatively low prices that prevailed in July 1939.

A large surplus of flaxseed is available in the Western Hemisphere. The domestic flaxseed crop this year is indicated to be 44 percent larger than in 1939 and the largest since 1924. Export prospects for Argentina, which normally ships large quantities of flaxseed to the United States and Europe, are distinctly unfavorable. However, the demand for flaxseed products in the United States has shown considerable strength in recent months, and flaxseed prices were about the same in July this year as last.

Domestic cottonseed production for the 1940-41 season is indicated to be slightly smaller than that for 1939-40, and considerably below average. The price of cottonseed at Dallas in July averaged more than $2.50 per ton higher than a year earlier. A record peanut crop is in prospect. If weather conditions continue favorable, a much larger quantity of peanuts is likely to be available for crushing in the new season than in the 1939-40 marketing year.

Factory production of fats and oils was 11 percent larger in the first 6 months of 1940 than a year earlier, and apparently was the largest for the first half on record. Increased output of lard, tallow, greases, and soybean oil accounted for most of the increase in production. Imports of fats and oils for the first half of 1940 were smaller, while exports were larger, than a year earlier. Stocks of fats and oils on June 30 were unusually large.

Improvement in industrial activity in the United States in 1940-41, resulting in part from increased defense expenditures, will be a factor tending to strengthen the demand and prices for domestic fats and oils. On the other hand, large supplies of most fats are available in the United States and other primary producing countries. And prices are not likely to show any major gains unless continental European markets are reopened to world trade.

## REVIEW OF RECENT DEVELOPMENTS

### Prices of fats and oils show little change from June

Prices of most fats and oils underwent little change from June to July. Lard, cottonseed oil, coconut oil, tung oil, and oiticica oil were moderately higher; while linseed oil, sardine oil, castor oil, and oleostearine were lower.

Except for inedible tallow and greases, prices of domestic fats and oils in July were equal to or slightly higher than in July 1939. Butter prices showed the most pronounced gain over a year earlier, with an increase of about 14 percent.

Nearly all imported fats were higher in July this year than last, with fish-liver oils showing a gain of more than 200 percent. Sesame oil was up 74 percent, perilla oil 69 percent, while increases for other items ranged from 20 to 50 percent. Prices of babassu, coconut, and palm oils, however, were little changed from a year earlier. Supplies of these oils in primary producing countries are plentiful and readily available to the United States. Shipments of most of the other imported items, on the other hand, have been greatly impeded by wars in Europe and China, and by low yields for perilla seed in Manchuria in 1939.

### Flaxseed and cottonseed prices decline as new-crop marketings begin

The average price of No. 1 flaxseed at Minneapolis, at $1.58 per bushel, was 20 cents lower in July than in June, but was about the same as in July 1939. Flaxseed prices reached a peak of $2.18 in January this year. Since then they have declined, partly because of the prospective large increase in the domestic crop, and partly because of the unfavorable export outlook for Argentine flaxseed.

The price of cottonseed at Dallas, which in January averaged slightly over $30 per ton, averaged slightly less than $21 in July. But at this level, cottonseed was more than $2.50 higher than a year earlier.

Prices of soybeans and peanuts showed little change from June to July, but prices for both commodities in July were somewhat lower than a year earlier. Present indications point to an increased output for these commodities this year, although weather conditions during the next 2 months will have an important influence on the final outcome for these crops.

## Indicated production of cottonseed slightly smaller than last year and below average; record peanut crop in prospect

Production of cottonseed in the 1940-41 season, as indicated by the August 1 official forecast for this year's cotton crop, may total about 5,087,000 tons, which would be 3 percent less than in 1939-40 and 16 percent below the average for the preceding 10 years.

The reduced output of cottonseed, together with a generally improved domestic demand situation, will be strengthening factors for prices of cottonseed and cottonseed products in the 1940-41 marketing season. The influence of these factors on prices, however, may be offset in part at least by increased domestic production of soybeans and peanuts, and by the continued restriction of export markets for oilseeds, oils, and oil cake in Europe.

The condition of the soybean crop on August 1 was reported to be below that of a year earlier, but was above the 10-year average for that date. With a larger acreage, soybean production is likely to be somewhat greater this year than last.

A record peanut crop is in prospect for the current year. If growers' reported intentions as to the acreage to be harvested are borne out, and if weather conditions continue to be favorable, the quantity of peanuts picked and threshed is expected to total somewhere in the neighborhood of 1,522 million pounds, 29 percent more than the 1,180 million pounds picked and threshed in 1939. With a crop of this size, a considerably larger quantity of peanuts would be available for crushing in the 1940-41 marketing season than in 1939-40.

## Factory output of fats and oils up sharply in first 6 months - imports reduced

Factory production of fats and oils during the first 6 months of 1940 totaled approximately 4,157,000,000 pounds, on the basis of recent reports of the Bureau of the Census and the Agricultural Marketing Service. At this level, production was 11 percent greater than in the first 6 months of 1939, and probably was the largest for the period on record. Production from domestic materials amounted to about 3,726,000,000 pounds, 12 percent greater than a year earlier and 90 percent of the factory total.

The most pronounced gains in output -- for the domestic items -- occurred in lard, 217 million pounds; inedible tallow and grease, 188 million pounds; linseed oil (from domestic flaxseed), 67 million pounds; and soybean oil, 51 million pounds. Partly offsetting these gains were reductions in output of cottonseed oil, 56 million pounds; peanut oil, 39 million pounds; and fish oils, 15 million pounds. Gains and losses for other items were comparatively small. Although the production of linseed oil from domestic flaxseed showed a marked increase, the total output of that oil was only about 15 million pounds greater than a year earlier, with a marked decrease occurring in the use of imported flaxseed.

As was to be expected in view of the marked expansion in domestic output, imports of fats and oils were considerably smaller in the first half of 1940 than a year earlier. Such imports totaled 459 million pounds, which was 95 million pounds (17 percent) less than in the first half of 1939. Imports of oil-bearing materials, however, totaling 456 million pounds in terms of oil, were 42 million pounds (10 percent) larger than a year earlier. Significant increases in imports occurred in copra, tung oil, castor beans, and whale oil; whereas significant decreases occurred in flaxseed, palm oil, fish-liver oils, cottonseed oil, perilla oil, and coconut oil.

In contrast to the trend in imports, exports of fats and oils in the first half of 1940, including re-exports of items imported free of tax or duty, totaled 215 million pounds, which was considerably larger than the total for the corresponding period a year earlier. Exports of oil-bearing materials, amounting to 25 million pounds in terms of oil, also were larger than a year earlier. Major increases in exports occurred in soybeans and soybean oil, coconut oil (mostly processed), palm oil, and cottonseed oil. Exports of lard and oleo oil were reduced, reflecting the loss of continental European markets and restrictions on imports by the United Kingdom.

### Stocks of fats and oils at high levels

Factory and warehouse stocks of fats and oils on June 30 totaled about 2,567 million pounds compared with 2,459 million pounds a year earlier and 2,274 million pounds 2 years earlier. Most of the increase in stocks during the past year occurred in lard, inedible tallow, and greases. Stocks of cottonseed oil, butter, peanut oil, and coconut oil showed fairly sharp reductions.

## UTILIZATION OF FATS IN THE SOAP INDUSTRY

### Consumption of fats in soap at record level in 1939

Approximately 1,810 million pounds of fats and oils were used in the manufacture of soap in the United States in 1939. This quantity was 8 percent larger than a year earlier, and was the largest on record; it exceeded the previous peak in 1929 by 7 percent, and was more than double the quantity used in 1914. Consumption of fats in soap in 1939 accounted for nearly 20 percent of the total domestic utilization of fats for all purposes.

The sharpest advance in soap manufacture during the past 30 years occurred in the period 1921-29, with the quantity of fats used increasing from 991 million pounds in 1921 to 1,689 million pounds in 1929. During that period fats and oils of foreign origin gained rapidly in importance as soap materials, with the proportion represented by imported items increasing from 27 percent of the total fats used in soap in 1921 to 45 percent in 1929. Since 1929, the imported items have declined in importance as soap materials; in 1939 imported fats accounted for only 31 percent of the total used in soap. Relatively low prices for domestic fats in the early 1930's, the imposition of excise taxes on the imports or processing of many foreign oils beginning in 1934, and increased production and low prices for domestic fats during the past 2 years have been the factors chiefly responsible for the decline in the proportion of imported fats used in soap.

## "Lauric-acid" oils account for nearly one-fourth of the total fats in soap

Despite the fact that imported fats as a whole have declined in importance as soap materials, the "lauric-acid" oils -- coconut, palm-kernel, and babassu -- have continued to make up 22-24 percent of the total fats and oils in soap. The relative decline in the use of foreign fats since 1929 has occurred chiefly in palm oil and imported fish oils, for which domestic tallow and fish oils have been substituted to a considerable extent.

Coconut, palm-kernel, and babassu oils possess similar properties, and may be used interchangeably for most purposes. Their chief value in the United States is to impart quick-lathering properties and hardness to soap, although they are also used for food purposes. The quick-lathering characteristics of these oils is due to the high proportion of short-chain-carbon acids, chiefly lauric and myristic, which they contain. Similar acids are not found in domestic fats and oils that are otherwise suitable for soap. A number of other tropical palms, such as the cohune found in Southern Mexico and Central America, yield nuts containing quick-lathering oils, but these oils are not at present available in large quantities.

Babassu oil in 1939 virtually replaced palm-kernel oil in soap. Babassu oil is obtained from the nut of the babassu tree found in great profusion in the tropical jungles of Northeastern Brazil. Only a fraction of the immense resources represented by this tree has as yet been exploited, largely because of inadequate transportation facilities, and because of capital and labor shortages. The competition offered by low-cost plantation copra in the Philippines and the East Indies also has been a deterrent factor.

Although the "lauric-acid" oils are important in the manufacture of high-quality soaps, they do not bulk so large as the domestic fats which they complement. Inedible tallow and greases, whale and fish oils, and vegetable-oil foots made up more than two-thirds of the total fats in soap in 1939. Inedible tallow alone accounted for 43 percent of the total.

## Over 3 billion pounds of soap produced annually in the United States

No complete series of soap-production figures is available. According to the Biennial Census of Manufactures, however, the quantity of soap and products containing soap produced in the United States in recent years has totaled well over 3 billion pounds annually, with a value at the plant of 200-300 million dollars. (Table 5.) Most of the soap produced in the United States is domestically consumed, with net exports usually representing less than 1 percent of production.

Glycerine, used for a great many industrial purposes, in explosives, and in food products, is an important byproduct of soap manufacture. Production of crude glycerine (80 percent basis) increased from 64 million pounds in 1921 to a record level of 184 million pounds in 1939. The United States ordinarily imports some glycerine in addition to that domestically produced, but in recent months glycerine has been on an export basis. Glycerine may be obtained from sources other than fats, for example, by fermentation of sugar or by synthesis from petroleum products. Ordinarily, however, the soap fats provide the cheapest source of supply. Nitroglycerine today is not widely used in smokeless gunpowder as was the case in the war of 1914-18, since nitrocellulose and other explosive agents have been found to be better suited to this purpose. Although the demand for glycerine has been relatively strong during the past 2 years, world supplies have been plentiful and the price of glycerine has been maintained at a relatively low level.

### Consumption of soap affected by business cycle and population trend

Judging from changes that have taken place in the quantity of fats and oils used in the manufacture of soap, it is apparent that soap production and consumption during the past 30 years have varied with the business cycle, and have increased somewhat more rapidly than population growth. If the past tendencies are continued, some further increase in the consumption of soap may be expected in the next few years as industrial activity expands and the population continues to grow. But the increase in soap consumption may be temporarily reduced in subsequent years with any repetition of the downward swing in the business cycle.

## INEDIBLE TALLOW AND GREASES: REVISION OF PRODUCTION AND DISAPPEARANCE ESTIMATES, 1912-39

Revised estimates of production and disappearance of inedible tallow and greases in the United States for the years 1919-39, and revised production estimates for 1912, 1914, and 1916-18 are published herewith. The revised estimates and those previously published by the Department of Agriculture are based on the same primary data, namely, factory production, consumption, and stocks as reported by manufacturers and dealers to the Bureau of the Census [1], data on foreign trade compiled by the Bureau of Foreign and Domestic Commerce, and - for years prior to 1919 - production data collected by the United States Food Administration [2]. The methods for computing apparent total production and consumption, however, have been changed considerably.

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[1] Animal and Vegetable Fats and Oils. Annual bulletin.

[2] Supplement to Bulletin No. 769, The Production and Conservation of Fats and Oils in the United States. United States Department of Agriculture, 1919.

In making the original estimates for the years from 1919 to 1939, it was assumed that the reported factory production of greases represented total production of greases, and that the reported factory consumption of inedible tallow represented total consumption of such tallow. No allowance was made for production in small, local rendering plants which are not canvassed by the Bureau of the Census, or for production on farms and ranches. Nor was allowance made for those quantities of greases reported by producers as greases and by consumers as inedible tallow.

The combined factory consumption of inedible tallow and greases (excluding wool grease) averaged about 53 million pounds more annually during the period 1919-39 than the combined factory production, after allowing for imports, exports, and changes in stocks each year. It seems probable that the total factory consumption as reported is approximately correct, although the reported consumption of inedible tallow apparently is too large, and the reported consumption of greases apparently is too small, for the reason indicated above.

The revised production estimates beginning 1919 are based primarily on the combined factory consumption figures. Exports and increases in factory and warehouse stocks (if any) were added each year to the combined factory consumption, while imports and reductions in stocks (if any) were deducted, to obtain the production figures. No separation between tallow and grease production was made, since there is no reliable basis for estimating how much of the unreported production is tallow and how much is grease. The basic data are shown in table 7, together with the revised production estimates.

For years prior to 1919, revised production estimates for inedible tallow were made by deducting from the all-tallow figures reported in _Supplement to Bulletin 769_ production estimates for edible tallow previously made by the Department of Agriculture and published in _Statistical Bulletin No. 59_ 3/. For greases, revised production estimates were made by deducting from the bone, garbage, wool-and-recovered, and miscellaneous greases, as reported in _Supplement to Bulletin 769_, the production estimates previously made for wool grease (_Statistical Bulletin No. 59_).

## Comparison of revised and unrevised data

The revised production estimates (on the combined basis) are shown in table 8 in comparison with the original estimates made by the Department of Agriculture, and with factory production and consumption as reported by the Bureau of the Census. The revised estimates are nearly 62 million pounds lower, on the average, than the original estimates of this Department, but are approximately 53 million pounds higher, on the average, than the reported factory production figures. The differences are due mainly to two factors:

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3/ Fats, Oils, and Oleaginous Raw Materials - Production, Prices, Trade, Disappearance in the United States 1912-35, and Available Data for Earlier Years. 1937.

(1) The original estimates of the Department of Agriculture were too high, being based primarily on the reported factory production of greases and on the reported factory consumption of inedible tallow, the latter of which apparently includes a considerable quantity of greases. (2) The reported factory production for both inedible tallow and greases apparently is too low, since small, local rendering plants, as well as farms and ranches producing tallow and greases for commercial disposition, are not canvassed by the Bureau of the Census.

For 1922 and 1935 the revised production estimates as first calculated were lower rather than higher than the reported factory production, in contradiction to what is believed to be the fact. An examination of the data revealed that the reported factory and warehouse stocks of inedible tallow and greases for December 31, 1922 were unusually low, while those for December 31, 1934 were unusually high. The large year-end stocks reported for 1934 are believed to reflect the abnormal imports of inedible tallow in 1935. Apparently some of these imports were on order in late 1934, and were reported by importers as stocks on hand. No adequate explanation of the low level of year-end stocks reported for 1922 is available. However, the stocks figures for 1922 were adjusted upward by 20 million pounds, while those for 1934 were adjusted downward by 20 million pounds. These more-or-less arbitrary adjustments had the effect of increasing the calculated production figures for 1922 and 1935 by 20 million pounds, and of decreasing those for 1923 and 1934 by corresponding amounts.

Table 2.- Estimated quantity of domestic and imported fats used in soap, and percentage imported fats are of the total, United States, 1912-39

| Year | Domestic 1/ | Imported 2/ | Total 3/ | Imported as percentage of total |
|---|---|---|---|---|
| | Million pounds | Million pounds | Million pounds | Percent |
| 1912 | 595 | 146 | 741 | 19.7 |
| 1914 | 651 | 168 | 819 | 20.5 |
| 1916 | 818 | 241 | 1,059 | 22.8 |
| 1917 | 814 | 387 | 1,202 | 32.2 |
| 1919 | 619 | 319 | 938 | 34.0 |
| 1921 | 718 | 272 | 991 | 27.4 |
| 1922 | 782 | 338 | 1,119 | 30.2 |
| 1923 | 737 | 458 | 1,196 | 38.3 |
| 1924 | 891 | 430 | 1,321 | 32.6 |
| 1925 | 851 | 564 | 1,415 | 39.9 |
| 1926 | 908 | 578 | 1,486 | 38.9 |
| 1927 | 992 | 634 | 1,626 | 39.0 |
| 1928 | 949 | 686 | 1,635 | 42.0 |
| 1929 | 924 | 765 | 1,689 | 45.3 |
| 1930 | 907 | 653 | 1,560 | 41.9 |
| 1931 | 863 | 678 | 1,542 | 44.0 |
| 1932 | 923 | 605 | 1,527 | 39.6 |
| 1933 | 869 | 588 | 1,456 | 40.4 |
| 1934 | 1,052 | 563 | 1,615 | 34.9 |
| 1935 | 1,092 | 411 | 1,504 | 27.3 |
| 1936 | 1,103 | 474 | 1,578 | 30.0 |
| 1937 | 1,076 | 582 | 1,659 | 35.1 |
| 1938 | 1,168 | 509 | 1,677 | 30.4 |
| 1939 | 1,240 | 569 | 1,810 | 31.4 |

Compiled as follows:

1912-30, United States Tariff Commission. Report No. 41, pp. 127, 130-32.

1931-39, Bureau of the Census, Animal and Vegetable Fats and Oils, except cottonseed oil foots and other foots, which are estimates of the Bureau of Agricultural Economics.

1/ Includes all tallow, greases, stearine, lard, oleo oil, neatsfoot oil, red oil, cottonseed and other foots, cottonseed oil, corn oil, peanut oil, and, beginning 1930, soybean oil; also proportionate part of whale and fish oils represented by domestic production of those oils, and one-half the linseed oil, "other" oils, and miscellaneous soap stock used in soap.

2/ Includes all babassu oil, coconut oil, palm-kernel oil, palm oil, olive oil, castor oil, rape oil, sesame oil, sunflower oil, vegetable tallow, and, prior to 1930, soybean oil; also proportionate part of whale and fish oils represented by imports of those oils, and one-half the linseed oil, "other" oils, and miscellaneous soap stock used in soap.

3/ Total of unrounded numbers.

Table 3.- Soap: Fats, oils, and rosin used in manufacture, United States, 1935-39

| Item | 1935 | 1936 | 1937 | 1938 | 1939 |
|---|---|---|---|---|---|
| Hard oils (tallow class): | 1,000 lb. | 1,000 lb. | 1,000 lb. | 1,000 lb. | 1,000 lb. |
| Slow lathering - | | | | | |
| Tallow, inedible | 663,002 | 660,020 | 613,509 | 702,267 | 785,041 |
| Whale and fish oils 1/ | 138,410 | 160,647 | 189,009 | 145,954 | 166,483 |
| Grease | 98,086 | 98,714 | 94,247 | 96,356 | 120,856 |
| Palm oil | 87,311 | 78,453 | 141,358 | 91,642 | 102,146 |
| Tallow, edible | 1,431 | 228 | 143 | 332 | 418 |
| Oleostearine | 338 | 320 | 321 | 240 | 278 |
| Lard | 1 | 9 | --- | 1 | 50 |
| Total | 988,579 | 998,391 | 1,038,587 | 1,036,792 | 1,175,272 |
| Quick lathering - | | | | | |
| Coconut oil | 229,711 | 307,376 | 252,241 | 342,982 | 388,912 |
| Palm-kernel oil | 37,173 | 26,443 | 111,514 | 29,498 | 3,657 |
| Babassu oil | --- | 8,993 | 14,308 | 8,289 | 37,633 |
| Total | 266,884 | 342,812 | 378,063 | 380,769 | 430,202 |
| Soft oils: | | | | | |
| Cottonseed oil foots and other foots 2/ | 191,000 | 183,000 | 183,000 | 208,000 | 156,000 |
| Olive oil, foots and inedible | 33,197 | 25,599 | 18,874 | 16,312 | 20,507 |
| Soybean oil | 2,549 | 5,023 | 10,274 | 10,897 | 11,177 |
| Cottonseed oil | 1,857 | 1,278 | 8,414 | 2,883 | 1,061 |
| Corn oil | 2,828 | 2,527 | 2,392 | 2,514 | 4,441 |
| Castor oil | 1,056 | 1,623 | 2,123 | 1,810 | 946 |
| Linseed oil | 1,196 | 1,482 | 1,359 | 1,455 | 1,780 |
| Peanut oil | 754 | 1,734 | 820 | 545 | 805 |
| Sesame oil | 749 | 1,869 | 2,944 | 302 | 14 |
| Oleo oil | 93 | 57 | 74 | 119 | 67 |
| Rape oil | 8,001 | 7,771 | 981 | 55 | 2 |
| Olive oil edible | 33 | 53 | 21 | 31 | 54 |
| Neatsfoot oil | 33 | 41 | 16 | 20 | 11 |
| Perilla oil | 16 | 8 | 2 | --- | 1 |
| Tung oil | --- | 2 | --- | --- | --- |
| Sunflower oil | 103 | --- | --- | --- | --- |
| Other 3/ | 4,762 | 4,268 | 10,812 | 14,031 | 7,364 |
| Total | 248,227 | 236,335 | 242,106 | 258,974 | 204,230 |
| Total fats and oils | 1,503,690 | 1,577,538 | 1,658,756 | 1,676,535 | 1,809,704 |
| Rosin 4/ | 139,375 | 148,536 | 136,410 | 117,464 | 5/ 117,507 |
| Total saponifiable materials | 1,643,065 | 1,726,074 | 1,795,166 | 1,793,999 | 1,927,211 |

Compiled as follows: Fats and oils, Bureau of the Census, Animal and Vegetable Fats and Oils; Rosin, Naval Stores Research Division, Bureau of Agricultural Chemistry and Engineering, United States Department of Agriculture.

1/ Includes whale, herring, sardine, menhaden, and other fish oils.

2/ Estimated.

3/ Reported as "other vegetable oils".

4/ The rosin season extends from April of one year through March of the next year. Data are placed in the calendar year in which most of the season occurs.

5/ Preliminary.

Table 4.-Soap: Fats, oils, and rosin as percentage of total saponifiable materials used in manufacture, United States, 1930-39

| Item | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. |
| Hard oils (tallow class): | | | | | | | | | | |
| Slow lathering- | | | | | | | | | | |
| Tallow, inedible | 26.5 | 31.5 | 33.1 | 32.0 | 37.7 | 40.4 | 38.2 | 34.2 | 39.1 | 40.7 |
| Whale and fish oils .......... | 6.8 | 7.6 | 5.9 | 6.1 | 5.6 | 8.4 | 9.3 | 10.5 | 8.1 | 8.6 |
| Grease .......... | 14.6 | 7.8 | 8.7 | 7.9 | 8.1 | 6.0 | 5.7 | 5.3 | 5.4 | 6.3 |
| Palm oil .......... | 11.5 | 10.4 | 10.1 | 11.8 | 8.8 | 5.3 | 4.5 | 7.9 | 5.1 | 5.3 |
| Other .......... | .4 | .3 | .2 | .2 | .1 | .1 | 1/ | 1/ | 1/ | 1/ |
| Total .......... | 59.8 | 57.6 | 58.0 | 58.0 | 60.3 | 60.2 | 57.7 | 57.9 | 57.7 | 60.9 |
| Quick lathering- | | | | | | | | | | |
| Coconut oil ..... | 18.2 | 20.5 | 21.3 | 20.3 | 19.4 | 14.0 | 17.8 | 14.1 | 19.1 | 20.2 |
| Palm-kernel oil . | 1.8 | 1.7 | .2 | .4 | .9 | 2.3 | 1.5 | 6.2 | 1.6 | .2 |
| Babassu oil ..... | --- | --- | --- | --- | --- | --- | .5 | .8 | .5 | 2.0 |
| Total .......... | 20.0 | 22.2 | 21.5 | 20.7 | 20.3 | 16.3 | 19.8 | 21.1 | 21.2 | 22.4 |
| Soft oils: | | | | | | | | | | |
| Cottonseed oil foots and other foots .......... | 6.2 | 9.1 | 9.2 | 9.1 | 8.0 | 11.6 | 10.6 | 10.2 | 11.6 | 8.1 |
| Olive oil, foots and inedible ... | 3.0 | 2.5 | 2.0 | 2.1 | 1.8 | 2.0 | 1.5 | 1.1 | .9 | 1.1 |
| Soybean oil ....... | .3 | .2 | .3 | .3 | .1 | .2 | .3 | .6 | .6 | .6 |
| Cottonseed oil .... | .4 | .1 | .2 | .4 | .2 | .1 | .1 | .5 | .2 | .1 |
| Other ............ | 3.7 | 1.1 | .9 | 1.1 | 1.2 | 1.1 | 1.4 | 1.0 | 1.3 | .7 |
| Total .......... | 13.6 | 13.0 | 12.6 | 13.0 | 11.3 | 15.0 | 13.9 | 13.4 | 14.6 | 10.6 |
| Total fats and oils ....... | 93.4 | 92.8 | 92.1 | 91.7 | 91.9 | 91.5 | 91.4 | 92.4 | 93.5 | 93.9 |
| Rosin ............. | 6.6 | 7.2 | 7.9 | 8.3 | 8.1 | 8.5 | 8.6 | 7.6 | 6.5 | 6.1 |
| Total saponifiable materials .. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

1935-39, based on data in table 3; earlier years given in The Fats and Oils Situation, August 1937.

1/ Less than .05 percent.

Table 5.-Quantity and value of the various kinds of soap produced in the soap industry, United States, 1935 and 1937

| Item | 1935 |  | 1937 |  |
|---|---|---|---|---|
|  | Quantity | Value | Quantity | Value |
|  | 1,000 lb. | 1,000 dol. | 1,000 lb. | 1,000 dol. |
| Bar soap |  |  |  |  |
| Toilet soap | 352,976 | 53,325 | 360,611 | 62,805 |
| Laundry soap - |  |  |  |  |
| White | 420,524 | 19,938 | 488,980 | 28,192 |
| Yellow | 713,541 | 31,403 | 633,441 | 33,196 |
| Granulated, powdered, and sprayed soap | 503,118 | 45,284 | 743,195 | 68,409 |
| Soap chips and flakes | 458,935 | 36,329 | 390,455 | 38,005 |
| Washing powders | 219,048 | 7,746 | 232,411 | 9,104 |
| Cleansers and scouring powders containing soap 1/ | 233,587 | 7,688 | 178,346 | 7,172 |
| Bar cleansers containing soap | 9,883 | 472 | 5,447 | 411 |
| Shaving soap |  |  |  |  |
| Stick, powder, and cake | 2/ 6,600 | 2,274 | 2/ 5,440 | 2/ 2,090 |
| Cream | 2/ 8,190 | 6,944 | 2/ 11,650 | 2/ 9,480 |
| Liquid soap | 2/ 29,300 | 1,973 | 2/ 38,650 | 2/ 3,150 |
| Textile soaps | 70,052 | 5,350 | 60,708 | 5,358 |
| Hand pastes | 14,174 | 792 | 16,931 | 1,062 |
| Soap stock - for sale | 3,665 | 270 | 4,522 | 347 |
| Other soap | 2/ 56,550 | 4,022 | 2/ 64,860 | 5,578 |
| Total 2/ | 3,100,143 | 223,810 | 3,235,647 | 274,359 |

Biennial Census of Manufactures, 1937, Part I.

1/ Does not include production in the Cleaning and Polishing Preparations industry.

2/ Partly estimated.

Table 6.-Glycerin, crude, 80 percent basis: Production in the United States, 1919-39

| Year | Production | Year | Production |
|---|---|---|---|
|  | 1,000 lb. |  | 1,000 lb. |
| 1919 | 61,793 |  |  |
| 1920 | 54,688 | 1930 | 138,675 |
| 1921 | 63,947 | 1931 | 140,002 |
| 1922 | 85,337 | 1932 | 133,919 |
| 1923 | 99,579 | 1933 | 119,812 |
| 1924 | 95,154 | 1934 | 153,115 |
| 1925 | 103,407 | 1935 | 141,185 |
| 1926 | 116,369 | 1936 | 154,096 |
| 1927 | 128,209 | 1937 | 169,039 |
| 1928 | 130,499 | 1938 | 162,120 |
| 1929 | 140,080 | 1939 | 184,476 |

Compiled from Bureau of the Census, Animal and Vegetable Fats and Oils.

### Table 7.- Inedible tallow and greases (excluding wool grease): Apparent production, trade, stocks December 31, and factory consumption, 1919-39

| Calendar year | Apparent production of inedible tallow and greases | Imports for consumption, inedible tallow | Domestic exports |  |  |  |  | Net exports of inedible tallow and greases | Stocks, December 31 |  |  | Factory consumption of inedible tallow and greases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Inedible tallow | "Other animal greases and fats, inedible" | Grease stearin | "Other animal oils, inedible" 1/ | Total |  | Inedible tallow | Greases | Total |  |
|  | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds |
| 1919 | 547,956 | 12,096 | 38,954 | 2/50,000 | 3/3,000 | 1,087 | 93,041 | 80,945 | 55,853 | 52,403 | 108,256 | 467,011 |
| 1920 | 639,731 | 14,875 | 20,692 | 2/60,000 | 3/3,000 | 667 | 84,359 | 69,484 | 79,125 | 89,425 | 168,550 | 509,953 |
| 1921 | 675,518 | 1,870 | 13,798 | 2/80,000 | 3/3,000 | 589 | 97,387 | 95,517 | 94,646 | 79,479 | 174,125 | 574,426 |
| 1922 | 745,251 | 1,831 | 29,000 | 57,472 | 3,407 | 700 | 90,579 | 88,748 | 4/ 68,317 | 5/54,948 | 123,265 | 707,363 |
| 1923 | 819,916 | 10,823 | 33,925 | 61,416 | 3,520 | 736 | 99,597 | 88,774 | 68,958 | 55,566 | 124,524 | 729,883 |
| 1924 | 848,079 | 2,440 | 32,973 | 79,684 | 3,008 | 475 | 116,140 | 113,700 | 61,443 | 39,594 | 101,037 | 757,866 |
| 1925 | 804,881 | 1,828 | 17,514 | 81,264 | 2,629 | 537 | 101,944 | 100,116 | 51,860 | 39,395 | 91,255 | 714,547 |
| 1926 | 848,088 | 13,647 | 10,628 | 72,640 | 2,429 | 660 | 86,357 | 72,710 | 84,065 | 47,319 | 131,384 | 735,249 |
| 1927 | 856,287 | 12,908 | 6,610 | 81,829 | 3,406 | 946 | 92,791 | 79,883 | 76,963 | 49,328 | 126,291 | 781,497 |
| 1928 | 795,747 | 14,239 | 3,211 | 62,984 | 1,452 | 741 | 68,388 | 54,149 | 66,618 | 36,065 | 102,683 | 765,206 |
| 1929 | 844,618 | 16,803 | 3,840 | 59,934 | 1,729 | 852 | 66,355 | 49,552 | 99,580 | 62,246 | 161,826 | 735,923 |
| 1930 | 867,665 | 591 | 5,594 | 63,561 | 3,172 | 1,377 | 73,704 | 73,113 | 140,909 | 74,463 | 215,372 | 741,006 |
| 1931 | 885,172 | 1,365 | 6/ | 75,286 | 3,850 | 1,144 | 80,280 | 78,915 | 163,364 | 85,238 | 248,602 | 773,027 |
| 1932 | 847,011 | 502 | 6/ | 56,940 | 1,428 | 1,928 | 60,296 | 59,794 | 185,742 | 64,521 | 250,263 | 785,556 |
| 1933 | 933,152 | 239 | 6/ | 70,054 | 942 | 1,833 | 72,829 | 72,590 | 255,925 | 87,532 | 343,457 | 767,368 |
| 1934 | 1,000,242 | 42,813 | 6/ | 55,708 | 623 | 1,267 | 57,598 | 14,785 | 7/306,484 | 70,341 | 376,825 | 952,089 |
| 1935 | 667,435 | 245,851 | 6/ | 14,731 | 1,092 | 4,047 | 19,870 | 8/225,981 | 295,660 | 60,199 | 355,859 | 914,382 |
| 1936 | 816,631 | 68,936 | 2,813 | 11,449 | 1,348 | 880 | 16,490 | 8/ 52,446 | 244,037 | 57,852 | 301,889 | 923,047 |
| 1937 | 854,852 | 3,851 | 883 | 3,415 | 384 | 771 | 5,453 | 1,602 | 195,998 | 72,918 | 268,916 | 886,223 |
| 1938 | 929,240 | 1,229 | 469 | 1,899 | 891 | 505 | 3,764 | 2,535 | 194,947 | 58,383 | 253,330 | 942,291 |
| 1939 9/ | 1,127,007 | 1,496 | 2,042 | 2,285 | 544 | 1,174 | 6,045 | 4,549 | 240,760 | 55,739 | 296,499 | 1,079,289 |

Bureau of Agricultural Economics. Compiled as follows:

Imports and exports, Foreign Commerce and Navigation of the United States, Bureau of Foreign and Domestic Commerce.

Stocks and factory consumption, Animal and Vegetable Fats and Oils, Bureau of the Census.

Apparent production computed.

1/ 1919-24, and estimate for 1925, lard oil; 1926 to date, "other animal oils, inedible," which may include small quantities of whale oil. Whale oil has been deducted when separately reported.

2/ Estimated on basis of value of exports and average price of greases at New York.

3/ Arbitrary estimate.

4/ Adjusted upward 5 million pounds.

5/ Adjusted upward 15 million pounds.

6/ Included with "other animal greases," etc.

7/ Adjusted downward 20 million pounds.

8/ Net imports.

9/ Preliminary.

Table 8.- Inedible tallow and greases (excluding wool grease): Total apparent production, factory production, and total disappearance, United States, 1912, 1914, 1916-39

| Calendar year | Total apparent production | | Factory production | Total disappearance | |
|---|---|---|---|---|---|
| | Original estimates 1/ | Revised estimates | | Factory consumption | Original estimates 1/ |
| | Mil. lb. | Mil. lb. | Mil. lb. | Mil. lb. | Mil. lb. |
| 1912 | 412 | 338 | 2/ | 2/ | 2/ |
| 1914 | 472 | 427 | 2/ | 2/ | 2/ |
| 1916 | 536 | 479 | 2/ | 2/ | 2/ |
| 1917 | 445 | 456 | 2/ | 2/ | 2/ |
| 1918 | 537 | 529 | 2/ | 2/ | 2/ |
| 1919 | 547 | 548 | 523 | 467 | 2/ |
| 1920 | 666 | 640 | 603 | 510 | 2/ |
| 1921 | 749 | 676 | 662 | 574 | 2/ |
| 1922 | 820 | 745 | 736 | 707 | 806 |
| 1923 | 881 | 820 | 786 | 730 | 776 |
| 1924 | 916 | 848 | 780 | 758 | 829 |
| 1925 | 826 | 805 | 733 | 715 | 739 |
| 1926 | 883 | 848 | 775 | 735 | 773 |
| 1927 | 930 | 856 | 776 | 781 | 859 |
| 1928 | 871 | 796 | 768 | 765 | 842 |
| 1929 | 922 | 845 | 815 | 736 | 816 |
| 1930 | 930 | 868 | 811 | 741 | 808 |
| 1931 | 951 | 885 | 857 | 773 | 844 |
| 1932 | 921 | 847 | 796 | 786 | 862 |
| 1933 | 965 | 933 | 897 | 767 | 802 |
| 1934 | 1,088 | 1,000 | 935 | 952 | 1,022 |
| 1935 | 700 | 667 | 653 | 914 | 972 |
| 1936 | 916 | 817 | 792 | 923 | 1,025 |
| 1937 | 928 | 855 | 741 | 886 | 961 |
| 1938 | 1,084 | 929 | 839 | 942 | 1,099 |
| 1939 3/ | 1,292 | 1,127 | 973 | 1,079 | 1,246 |

Factory production and consumption compiled from reports of the Bureau of the Census.

1/ Recovered grease not included until 1937. Series is too high because of duplication in greases resulting from basing estimates on factory production of greases and factory consumption of inedible tallow, which apparently includes some grease.
2/ Not reported.
3/ Preliminary.

Table 9.- Oleomargarine: Production and materials used in manufacture, United States, June 1938 and 1939, April-June 1940

| Item | June | | 1940 1/ | | |
|---|---|---|---|---|---|
| | 1938 | 1939 | Apr. | May | June |
| | 1,000 lb. | 1,000 lb. | 1,000 lb. | 1,000 lb. | 1,000 lb. |
| Production: | | | | | |
| Colored | 121 | 80 | 177 | 181 | 282 |
| Uncolored | 28,025 | 21,046 | 27,231 | 24,496 | 19,570 |
| Total 2/ | 28,146 | 21,126 | 27,408 | 24,676 | 19,852 |
| Materials used: | | | | | |
| Oleo oil | 1,405 | 1,009 | 1,235 | 933 | 900 |
| Oleostearine | 299 | 260 | 314 | 310 | 236 |
| Lard, neutral | 120 | 85 | 638 | 498 | 423 |
| Oleo stock | 191 | 114 | 119 | 91 | 70 |
| Beef fat | --- | 15 | --- | --- | --- |
| Oleostearine oil | --- | --- | --- | 88 | --- |
| Total, animal | 2,015 | 1,483 | 2,306 | 1,920 | 1,629 |
| Cottonseed oil | 9,502 | 6,708 | 8,188 | 8,468 | 7,392 |
| Soybean oil | 2,629 | 5,470 | 7,140 | 5,727 | 4,463 |
| Peanut oil | 386 | 167 | 113 | 133 | 137 |
| Corn oil | 4 | 21 | 32 | 48 | 10 |
| Soybean stearine | --- | --- | 1 | 1 | 1 |
| Cottonseed stearine | --- | --- | --- | --- | 2 |
| Total, domestic vegetable | 12,521 | 12,366 | 15,474 | 14,377 | 12,005 |
| Coconut oil | 7,433 | 2,129 | 3,084 | 2,527 | 1,575 |
| Babassu oil | 454 | 1,106 | 937 | 962 | 683 |
| Palm-kernel oil | 260 | --- | --- | --- | --- |
| Palm oil | --- | --- | --- | --- | 3 |
| Total, foreign vegetable | 8,147 | 3,235 | 4,021 | 3,489 | 2,261 |
| Total, fats and oils | 22,683 | 17,084 | 21,801 | 19,786 | 15,895 |
| Milk | 5,292 | 4,112 | 5,244 | 4,691 | 3,811 |
| Salt and other miscellaneous | 1,230 | 989 | 1,234 | 1,074 | 878 |

Compiled from Internal Revenue records and Internal Revenue Bulletin.

1/ Preliminary.
2/ Total of unrounded numbers.